SHORT COMMUNICATION

J. Raptor Res. 27(4):214–216

FOOD HABITS OF THE RUFOUS-LEGGED OWL (*STRIX RUFIPES*) IN TEMPERATE RAINFORESTS OF SOUTHERN CHILE

DAVID R. MARTÍNEZ
Laboratorio de Ecología, Departamento de Ciencias Básicas. Universidad de Los Lagos, Casilla 933, Osorno, Chile

The Rufous-legged Owl (*Strix rufipes*) is the least known owl species inhabiting the temperate rainforest region of southern South America. The scarce biological knowledge about this species is either anecdotal (Housse 1945, Johnson 1967) or consists of brief accounts on taxonomy and distribution (e.g., Humphrey et al. 1970, Vuilleumier 1985, Jaksić and Feinsinger 1991). There is no published information on the diet of Rufous-legged Owls. Here, I report the first quantitative data on the food habits and prey selection by these owls.

STUDY AREA AND METHODS

I studied Rufous-legged Owls at two sites located in the Valdivian Rain Forest Region of Southern Chile (*sensu* Veblen et al. 1983). One was San Martín Experimental Forest (39°38′S, 73°07′W; 20 m elevation), located on the coastal ranges of Valdivia Province. This 80 ha area was covered by multilayered forests dominated by *Aextoxicum punctatum* and *Podocarpus saligna* with substantial presence of *Gevuina avellana* and some scattered old individuals of emergent *Nothofagus dombeyi*. The understory was sparse, and the soil was covered with a thick layer of mosses and litter. The other site was a 25 ha second-growth forest surrounding the experimental fish hatchery at Lake Rupanco (40°39′S, 72°38′W; 150 m elevation). This site was contiguous with dense riparian forests running toward pre-Andean forests east of Osorno Province. It was an almost pure stand of old *Aextoxicum punctatum*, with minor amounts of *Laurelia sempervirens*, *Gevuina avellana*, and *Nothofagus dombeyi* trees. It had a sparse shrub undergrowth of *Chusquea quila* and a thin layer of mosses and litter.

Owl pairs remained in both areas year-round, and their pellets were collected under roosting trees. At San Martín, I collected 78 pellets from April (early autumn) 1988 to February (late summer) 1990, and in January 1992. At Rupanco, I collected 83 pellets from February 1992 to January 1993. From the whole sample (161 pellets), I measured and weighed 78 intact pellets. I identified and quantified most vertebrates in the pellets on the basis of skulls (Reise 1973) or dentary pairs (whichever gave the highest count). For other remains, such as hairs and feathers, I used reference collections and quantified these prey assuming the smallest possible number of individuals (e.g., hair or feathers of a given species were deemed as representing only one individual). For insect identification, I followed Peña (1986) and quantified these prey by counting head capsules and mandibles. I identified prey items to the finest possible taxonomic category.

The mass of most prey was determined by weighing individuals captured at the study area. Some mass estimates were taken from the literature (Pearson 1983, Jaksić et al. 1986). I estimated the biomass contribution of each prey type to the owls' diet by multiplying the number of individuals in the pellets by the mean body mass of that item. I assumed that masses of unidentified prey were similar to the average mass of the most closely related identified taxa.

Because there were no important differences in the contents of pellets collected at both sites, I pooled these data and analyzed the combined diet on a seasonal and year-round basis.

RESULTS AND DISCUSSION

The 78 whole pellets averaged 35.4 ± 0.86 mm × 21.8 ± 0.55 mm and had a mean dry mass of 2.8 ± 0.36 g ($\bar{x}$ ± SE).

The 161 pellets analyzed yielded 376 prey items (Table 1), of which small mammals were the most frequent. The arboreal mouse (*Irenomys tarsalis*) was the most common item in the diet in all seasons other than summer. The long-tailed mouse (*Oryzomys longicaudatus*) was consistently preyed upon year-round, and was the staple food of owls during spring and summer both by number and biomass. The colocolo opossum (*Dromiciops australis*) was better represented during spring and summer than during autumn and winter. Other mammalian prey included the introduced black rat (*Rattus rattus*), the long-haired mouse (*Akodon longipilis*), the olivaceus field mouse (*Akodon olivaceus*), the austral greater mouse (*Auliscomys micropus*), Darwin's leaf-eared mouse (*Phyllotis darwini*) and an unidentified bat, probably a big-eared bat (*Histiotus montanus*).

Birds from the family Furnariidae made minor contributions in biomass. At least two of the unidentified Furnariidae were probably White-throated Treerunners (*Pygarrhychas albogularis*).

The contribution of amphibians to total biomass consumed was negligible, and the remains observed (long

Table 1. Food habits of the Rufous-legged Owl (*Strix rufipes*) in primary growth temperate rainforests of southern Chile. B% is percent by biomass and *N* is prey number. Mass[a] of prey items in grams.

PREY	MASS (g)	SUMMER B% (*N*)	AUTUMN B% (*N*)	WINTER B% (*N*)	SPRING B% (*N*)	TOTAL B% (*N*)
Mammals						
Akodon longipilis	41	0.0 (0)	2.8 (2)	0.0 (0)	0.0 (0)	1.4 (2)
Akodon olivaceus	23	0.0 (0)	0.0 (0)	4.1 (3)	3.0 (1)	1.5 (4)
Auliscomys micropus	58	0.0 (0)	1.9 (1)	0.0 (0)	0.0 (0)	1.0 (1)
Irenomys tarsalis	42	0.0 (0)	55.4 (39)	37.6 (15)	10.8 (2)	39.2 (56)
Oryzomys longicaudatus	26	35.6 (8)	13.2 (15)	31.0 (20)	33.4 (10)	23.0 (53)
Phyllotis darwini	66	0.0 (0)	4.4 (2)	0.0 (0)	0.0 (0)	2.2 (2)
Rattus rattus	40[b]	13.7 (2)	1.3 (1)	2.4 (1)	5.1 (1)	3.3 (5)
Unident. rodents	42.2	14.4 (2)	11.4 (8)	17.6 (7)	5.4 (1)	12.7 (18)
Dromiciops australis	34	23.3 (4)	6.9 (6)	4.1 (2)	26.2 (6)	10.2 (18)
Unident. bat	15	0.0 (0)	0.0 (0)	0.0 (0)	1.9 (1)	0.2 (1)
Subtotal mammals		87.0 (16)	97.3 (74)	96.8 (48)	85.8 (22)	94.7 (160)
Birds						
Aphrastura spinicauda	18	0.0 (0)	0.6 (1)	1.1 (1)	0.0 (0)	0.6 (2)
Unident. Furnariidae	18	3.1 (1)	0.6 (1)	0.0 (0)	2.3 (1)	0.9 (3)
Subtotal birds		3.1 (1)	1.2 (2)	1.1 (1)	2.3 (1)	1.5 (5)
Amphibians						
Leptodactylidae	10	1.7 (1)	0.0 (0)	0.5 (1)	1.3 (1)	0.5 (3)
Subtotal amphibians		1.7 (1)	0.0 (0)	0.5 (1)	1.3 (1)	0.5 (3)
Insects						
Carabidae	0.84	0.0 (0)	0.1 (1)	0.0 (0)	0.0 (0)	0.1 (1)
Cerambycidae	1.04	1.2 (7)	0.1 (1)	0.1 (2)	0.4 (3)	0.2 (13)
Curculionidae	0.22	0.0 (0)	0.0 (0)	0.1 (2)	0.0 (0)	0.1 (2)
Lucanidae	2.04	1.1 (3)	0.2 (3)	0.1 (1)	0.5 (2)	0.3 (9)
Scarabaeidae	0.48	1.6 (20)	0.1 (2)	0.0 (0)	3.2 (52)	0.6 (74)
Silphidae	0.45	0.0 (0)	0.0 (0)	0.1 (1)	0.0 (0)	0.1 (1)
Acrididae	0.69	0.2 (2)	0.0 (0)	0.1 (1)	0.7 (8)	0.1 (11)
Stenopelmatidae	1.35	0.5 (1)	0.7 (15)	0.6 (7)	0.2 (1)	0.5 (24)
Blattidae	1.12	3.6 (19)	0.3 (7)	0.5 (8)	5.6 (39)	1.3 (73)
Subtotal Insects		8.2 (52)	1.5 (29)	1.6 (22)	10.6 (105)	3.3 (208)
Total prey items		70	105	72	129	376
Total biomass (g)		584.8	2954.7	1674.5	778.9	5992.8
Total pellets		23	55	45	38	161

[a] Masses for mammals were obtained from Pearson (1983) for *Irenomys* and *Auliscomys,* from Jaksić et al. (1986) for *Phyllotis,* and from D.R. Martínez (unpubl. data) for the remaining taxa. Masses for insects are the average of representative members of each family collected at the study sites (D.R. Martínez unpubl. data).

[b] Juveniles.

femora) could be of arboreal frogs (*Hylorina sylvatica*), a scarce anuran that climbs up vegetation using its opposable halluces.

Insects outnumbered mammals in the diet only during spring and summer, but their biomass contribution was unimportant on a year-round basis. Individuals of Blattidae (cockroaches) as well as Scarabaeidae (beetles), were the most frequent items, followed by camel crickets (Stenopelmatidae) and grasshoppers (Acrididae). During autumn and winter insects were uncommon in the diet, likely because only Blattidae and Stenopelmatidae were available in low numbers during these seasons.

Based on my data the Rufous-legged Owl may be considered a generalist feeder, taking a variety of prey available within the restrictions imposed by its hunting tactics (it is a sit-and-wait predator), and by prey size and behavior. Nevertheless, the most frequent vertebrate prey were arboreal or scansorial small mammals. Terrestrial

small mammals, despite their similar or higher field abundance (Murúa and González 1986), and higher number of species present in temperate rainforests (Meserve and Jaksić 1991), were poorly represented as food items of Rufous-legged Owls, both by numbers and biomass. This apparent differential utilization of prey resources by Rufous-legged Owls warrants further examination.

RESUMEN.—Este es el primer estudio cuantitativo de los hábitos alimentarios del Concón (*Strix rufipes*), producto del análisis de 161 egagrópilas recolectadas en dos ambientes no intervenidos de bosque templado en el sur de Chile. La composición de la dieta fluctuó estacionalmente e incluyó varias especies de mamíferos, aves, anuros e insectos. Las presas más comunes fueron micromamíferos (roedores y una especie de marsupial) e invertebrados (principalmente Blattidae y Scarabaeidae). Sin embargo, el aporte en biomasa de los primeros fue muy superior al de los insectos. El consumo de invertebrados fue más frecuente durante primavera y verano, mientras que en otoño e invierno los Concones depredaron casi exclusivamente sobre micromamíferos. Los micromamíferos de hábitos arborícolas y escansoriales fueron más depredados que los de hábitos terrícolas. Así, los Concones parecen seleccionar las presas que constituyen su dieta.

[Traducción Autor]

ACKNOWLEDGMENTS

I thank Susan Chaplin for sponsoring me as a member of RRF. Eric D. Forsman kindly sent me some of his invaluable articles and unpublished papers on Spotted Owls (*Strix occidentalis*). Theodore J. Cohn sent me hard-to-retrieve reports on owls, and his authoritative descriptions of South American crickets helped me identify those prey. This work was funded by FONDECYT 92-327 and DI-IPO 304-75.

LITERATURE CITED

HOUSSE, R. 1945. Las aves de Chile en su clasificación moderna: su vida y sus costumbres. Ediciones Univ. de Chile, Santiago, Chile.

HUMPHREY, P.S., D. BRIDGE, P.W. REYNOLDS AND R.T. PETERSON. 1970. Birds of Isla Grande (Tierra del Fuego). Preliminary Smithsonian Manual, Univ. Kansas Mus. Nat. Hist., Lawrence, KS U.S.A.

JAKSIĆ, F.M., J.L. YAÑEZ AND J.R. RAU. 1986. Prey and trophic ecology of Great Horned Owls in western South America: an indication of latitudinal trends. *Raptor Res.* 20:113–116.

——— AND P. FEINSINGER. 1991. Bird assemblages in temperate forests of North and South America: a comparison of diversity, dynamics, guild structure, and resource use. *Rev. Chil. Hist. Nat.* 64:491–510.

JOHNSON, A.W. 1967. The birds of Chile and adjacent regions of Argentina, Bolivia and Peru. Volume II. Platt Establecimientos Gráficos, Buenos Aires, Argentina.

MESERVE, P.L. AND F.M. JAKSIĆ. 1991. Comparisons of terrestrial vertebrate assemblages in temperate rainforests of North and South America. *Rev. Chil. Hist Nat.* 64:511–535.

MURÚA R. AND L.A. GONZÁLEZ. 1986. Regulation of numbers in two neotropical rodent species in southern Chile. *Rev. Chil. Hist. Nat.* 59:193–200.

PEARSON, O.P. 1983. Characteristics of a mammalian fauna from forests in Patagonia, southern Argentina. *J. Mammal.* 64:476–492.

PEÑA, L.E. 1986. Introducción a los insectos de Chile Editorial Universitaria, Santiago, Chile.

REISE, D. 1973. Clave para la determinación de los cráneos de marsupiales y roedores chilenos. *Gayana* (*Zoología*) 27:1–20.

VEBLEN, T.T., F.M. SCHLEGEL AND J.V. OLTREMARI 1983. Temperate broad-leaved evergreen forests of South America. Pages 5–31 *in* J.D. Ovington [ED.], Temperate broad-leaved evergreen forests. Elsevier Sci. Publ., Amsterdam, The Netherlands.

VUILLEUMIER, F. 1985. Forest birds of Patagonia: ecological geography, speciation, endemism, and faunal history. Pages 255–304 *in* P.A. Buckley, M.S. Foster, E.S. Morton, R.S. Ridgely and F.G. Buckley [EDS.], Neotropical ornithology. *Ornithol. Monogr.* 36.

Received 25 April 1993; accepted 20 August 1993